DOCKET NO. 1150-20-CP

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:
Jeno Muthiah

Serial No.: 10/806,973

Filed: March 23, 2004

Title: COATING POWDERS HAVING ENHANCED FLEXIBILITY

Group Art Unit: 1712

Examiner: John J. Figueroa

DECLARATION OF JENO MUTHIAH

I, Jeno Muthiah, declare as follows:

1. I reside at 1347 Paddock Place, Bartlett, IL 60103.

2. I received a Bachelor of Science degree in Textile Technology from Anna University, Madras, India in 1986; a Ph.D. in Polymer Science from University of Southern Mississippi in 1996; and an MBA from St. Joseph's University, Philadelphia, Pennsylvania in 1998.

3. I have approximately 12 years' experience in all phases of the powder coating industry. I served as a chemist and research and development group leader for Morton Powder Coatings, Reading, Pennsylvania for approximately six years. In the year 2000, I founded and have since operated Alpha Coating Technologies, LLC as its president. Alpha conducts research and development in the field of powder coatings, is a manufacturer and seller of a wide variety of coating

powders to the powder coating industry, and provides appropriate technical assistance and support to its customers.

4. I have been granted approximately 26 U.S. patents in the powder coating field.

5. I am the inventor of the above-identified patent application and have read and understood such patent application and its claims.

6. I have read and understood the Office Action of July 3, 2006 in which claims 10-12 and 15-17 were rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent Number 6,294,610 B1 (hereinafter referred to as "the "Daley patent") and claims 13, 14, 18, 19, 23, and 24 were rejected under 35 U.S.C. §103(a) as unpatentable over the Daley patent. I have also read and understood the Daley patent relied upon by the Examiner in the above mentioned rejections.

7. The following tests were performed under my direction and control:

Powder coating formulations that were tested are as follows

Raw material	122-89-1	122-89-2	122-89-3
SCX 821	270	135	
SP 088	0	135	270
TGIC	30	30	30
P 67	4.2	4.2	4.2
BENZOIN	2.4	2.4	2.4
KEMIRA 660	165	165	165
3097 RED	0.2	0.2	0.2
1420 M YELLOW	0.05	0.05	0.05
RAVEN 22	0.1	0.1	0.1
NXJ 60 PDR	3.0	3.0	3.0
Longnox 1068	4.8	4.8	4.8

The following coating powder samples were extruded in a single screw extruder and then ground into powder and screened with a 140 mesh screen. The powders were then sprayed on MDF panels following preheating the panels for 10 minutes at 400 degrees F and then were baked for 5 minutes at 400 degrees F. Both samples were sprayed on q-panels at 300 degrees F for a 5 minute cure cycle. This procedure was performed to test the flexibility of the coatings under conditions that are used for curing the powder following application to MDF panels. The powder coated MDF panels were monitored in warehouse space for two weeks and for edge cracking which again indicates if the powder coating formulation is sufficiently flexible to accommodate expansion and contraction of the MDF panel with variation in environmental conditions such as temperature and humidity.

Property	122-89-1	122-89-2	122-89-3
Mek resistance	No rub off	No rub off	Rubs through in 30 rubs
Gloss	10.5	11.2	18.0
Direct impact (Q-Panel)	Fail 20 inch-lbs	Pass 40 inch-lbs	Fail 20 inch-lbs
Edge cracking after two weeks on MDF	Visible Cracking	No cracking	Severe cracking

Both samples 122-89-1 and 122-89-2 exhibited comparable gloss and appearance characteristics on MDF and Q-panel. Sample 122-89-3 did not cure and resulted in a coating that

had a very inconsistent appearance Under impact testing on Q-panel, sample 122-89-1 and 122-89-3 did not pass 20 inch-lbs and sample 122-89-2 passed 40 inch-lbs. It is surprising that incorporation of 50 % acid functional polyester resin in sample 122-89-2 provided such an improvement over 122-89-1 and 122-89-3 in flexibility without affecting any of the other properties. It can also be seen that polyester resin, by itself, does not provide a useful product because it does not cure fully under these conditions. Thus the combination of the acid functional polyester and acrylic resin provides a unique product with extremely desirable performance properties.

8. I conclude, based upon the data obtained in above paragraph 7, that it is evident that curing speed is increased with use of the resin mixture of the coating powder of the invention when contrasted with the sole use of acid functional polyester resin. I also conclude, based upon the data obtained in above paragraph 7, that it is evident that coating flexibility is improved with use of the resin mixture of the coating powder of the invention when contrasted with the sole use of acid functional acrylic resin.

9. The following tests were performed under my direction and control:

The following coating powder formulations were tested for a combination of curing agents with mixture of acrylic and polyster acid functional polyester resin.

Raw material	122-89-4	122-89-2
SCX 821	127.5	135
SP 088	127.5	135
TGIC	15	30
P 67	4.2	4.2
BENZOIN	2.4	2.4
KEMIRA 660	165	165
3097 RED	0.2	0.2
1420 M YELLOW	0.05	0.05
RAVEN 22	0.1	0.1
NXJ 60 PDR	3.0	3.0
GMA acrylic Resin	30	30
Longnox 1068	4.8	4.8

Sample 122-89-4 contains stoichimetrically 50:50 TGIC and epoxy functional acrylic resin (GMA).

Property	122-89-4	122-89-2
Mek resistance	No rub off	No rub off
Gloss	11.0	11.2
Direct impact (Q-Panel)	Pass 40 inch-lbs	Pass 40 inch-lbs
Edge cracking after two weeks on MDF	No cracking	No cracking

These tests indicate that use of two acid functional resins with a combination of TGIC and epoxy functional acrylic resin also provides powder coatings with desired properties.

10. Based upon the data obtained in above paragraph 9, it is evident that the use of two epoxy curing agents in the coating powder of the invention does not deteriorate the flexibility of the final product .

11. The data and information contained at page 35. Line 23 to page 38, line 24 confirm my conclusions in above paragraphs 8 and 10.

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Declarant understands that (1) any willful false statements and the like made herein are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon, and (2) that all statements made of Declarant's own knowledge are true and that all statements made on information and belief are believed to be true.

Further Declarant saveth not.

Date: 1/2/07

Jeno Muthiah